HTIRC03-001

1. A method to suppress AMR noise from a magnetic shield having a surface and a resistance, comprising:

coating said shield with a layer of conductive material having a resistance, parallel to said surface, that is between about 0.2 and 0.1 times said magnetic shield resistance.

2. The method recited in claim 1 wherein said magnetic shield is NiFe, CoZrNb, NiFeCr, NiFeTa, or FeAlSi.

3. The method recited in claim 1 wherein said magnetic shield has a sheet resistance is between about 0.15 and 0.45 ohms per square.

4. The method recited in claim 1 wherein said layer of conductive material is Cu, Al, Au, or Ag.

5. The method recited in claim 1 wherein said layer of conductive material has a resistivity between about 2 and 10 microhm-cm.

6. The method recited in claim 1 wherein said layer of conductive material is deposited to a thickness between about 0.5 and 5 microns.

7. A magnetic shield structure comprising:

a magnetic shield having the form of a layer that has a surface and a resistance; and

on said magnetic shield, a layer of conductive material having a resistance, parallel to said surface, that is between about 0.2 and 0.1 times said magnetic shield resistance.

8. The magnetic shield described in claim 7 wherein said magnetic shield is NiFe, CoZrNb, NiFeCr, NiFeTa, or FeAlSi.

9. The magnetic shield described in claim 7 wherein each of said magnetic shields has a sheet resistance between about 0.15 and 0.45 ohms per square.

10. The magnetic shield described in claim 7 wherein said layer of conductive material is Cu, Al, Au, or Ag.

11. The magnetic shield described in claim 7 wherein said layer of conductive material has a resistivity between about 2 and 10 microhm-cm.

12. The magnetic shield described in claim 7 wherein said layer of conductive material has a thickness between about 0.5 and 5 microns.

13. A process to manufacture a CPP GMR magnetic read head, having low AMR noise,

comprising:

providing a substrate;

depositing on said substrate a lower conductive layer, having a resistance in the plane of the substrate;

depositing on said lower conductive layer a lower magnetic shield layer having a resistance that is between about 0.2 and 0.1 times said in-plane resistance of said lower conductive layer;

forming a CPP GMR stack on said lower magnetic shield;

depositing on said CPP GMR stack an upper magnetic shield layer having a resistance in the plane of the substrate; and

depositing on said upper magnetic shield layer an upper conductive layer having a resistance that is between about 0.2 and 0.1 times said in-plane resistance of said upper magnetic shield.

14. The process recited in claim 13 wherein said magnetic shields are NiFe, CoZrNb, NiFeCr, NiFeTa, or FeAlSi.

15. The process recited in claim 13 wherein each of said magnetic shields has a sheet resistance between about 0.15 and 0.45 ohms per square.

16. The process recited in claim 13 wherein said lower conductive layer is Cu, Al, Au,

or Ag.

17. The process recited in claim 13 wherein said lower conductive layer has a resistivity between about 2 and 10 microhm-cm.

18. The process recited in claim 13 wherein said lower conductive layer is deposited to a thickness between about 0.5 and 5 microns.

19. The process recited in claim 13 wherein said upper conductive layer is Cu, Al, Au, or Ag.

20. The process recited in claim 13 wherein said upper conductive layer has a resistivity between about 2 and 10 microhm-cm.

21. The process recited in claim 13 wherein said upper conductive layer is deposited to a thickness between about 0.5 and 5 microns.

22. A CPP GMR read head having low AMR noise, comprising:

on said substrate, a lower conductive layer, having a resistance in the plane of the substrate;

on said lower conductive layer a lower magnetic shield layer having a resistance

that is between about 0.2 and 0.1 times said in-plane resistance of said lower conductive layer;

a CPP GMR stack on said lower magnetic shield;

on said CPP GMR stack, an upper magnetic shield layer having a resistance in the plane of the substrate; and

on said upper magnetic shield layer, an upper conductive layer having a resistance that is between about 0.2 and 0.1 times said in-plane resistance of said upper magnetic shield.

23. The read head described in claim 22 wherein said magnetic shields are NiFe, CoZrNb, NiFeCr, NiFeTa, or FeAlSi.

24. The read head described in claim 22 wherein each magnetic shield has a sheet resistance of between about 0.15 and 0.45 ohms per square.

25. The read head described in claim 22 wherein said lower conductive layer is Cu, Al, Au, or Ag.

26. The read head described in claim 22 wherein said lower conductive layer has a resistivity between about 2 and 10 microhm-cm.

27. The read head described in claim 22 wherein said lower conductive layer has a thickness between about 0.5 and 5 microns.

28. The read head described in claim 22 wherein said upper conductive layer is Cu, Al, Au, or Ag.

29. The read head described in claim 22 wherein said upper conductive layer has a resistivity between about 2 and 10 microhm-cm.

30. The read head described in claim 22 wherein said upper conductive layer has a thickness between about 0.5 and 5 microns.

31. The read head described in claim 22 wherein said upper and lower shields are separated by no more than 0.08 microns.

32. The read head described in claim 22 wherein AMR noise is reduced by 14 - 20 dB.